AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

What is claimed is:

1. (Original) A bi-directional, redundant, optical transport system configured to provide a non-blocking, bi-directional, multi-channel, protocol independent optical transport system for the simultaneous transfer of digital, analog, and discrete data between a plurality data terminal equipment, the optical transport system comprising:

a light transmission line for transmitting light bi-directionally;

a plurality of nodes, connected in series by the light transmission line for receiving, extracting and passing signal light, each node comprising:

data terminal equipment for issuing and receiving electrical signals;

an electro-optical interface device, associated the data terminal equipment, for converting electrical signals issued by the associated data terminal to it signal light for insertion onto the light transmission light and for converting signal light, extracted from the light transmission line into electrical signals to be received by the associated data terminal;

a translation logic device connected between the electrical optical interface device and the data terminal equipment, for performing required protocol translation for the data terminal equipment;

an optical interface device, connected to the electro-optical interface device and the light transmission line, for extracting signal light from the light transmission line to be converted into electrical signals by the electro-optical interface device for receipt by the data

terminal equipment, for inserting, onto the light transmission line, signal light received from the electro-optical interface device and for passing signal light bi-directionally on the light transmission line;

a pump source for inserting excitation light onto the light transmission line;

an optical amplifier connector fiber connecting the each of the optical interface devices serially to one another, wherein the optical amplifier connector fiber is doped with a material which is excited by the excitation light and which emits light having a same wavelength as the light signals when radiated with light signals transmitted bi-directionally by the at least one fiber optic line.

2. (Original) An optical transport system according to claim 1, wherein the data terminal equipment comprises one of a computer, video or telephone device, having different protocol requirements.

3. (Original) An optical transport system according to claim 1, wherein the pump source is a pump laser which emits excitation light.

4. (Original) An optical transport system according to claim 3, wherein the excitation light emitted by the pump laser has a wavelength of about 980 nm.

5. (Original) An optical transport system according to claim 4, wherein the signal light has a wavelength of about 1550 nm.

6. (Original) An optical transport system according to claim 5, wherein the connector fiber is doped with erbium.

7. (Original) An optical transport system according to claim 6, wherein the length of the optical amplifier connector fiber is set as a function of the amount of amplification

required.

8. (Original) An optical transport system according to claim 7, wherein the length of the optical amplifier connector fiber is about two meters.

9. (Original) An optical transport system according to claim 1, wherein the optical interface device comprising:

a first optical coupler for receiving signal light to be inserted onto or extracted from the light transmission line; and

a fiber optic-line, optical coupler, coupled to the light transmission line and to the first optical coupler, for passing light on the light transmission line, for receiving light from the first optical coupler to be inserted onto the light transmission line and transmitting said received light in opposite directions on the light transmission line, and for extracting light from opposite directions on the light transmission line and transmitting said extracted light to the first optical coupler.

10. (Original) An optical transport system according to claim 9 wherein the first optical coupler is a four port, bi-directional optical coupler.

11. (Original) An optical transport system according to claim 10, wherein the first optical coupler has:

first and second ports for receiving light to be inserted onto the light transmission line and for transmitting light extracted from the light transmission line, and

third and fourth ports each respectively connected to the fiber optic-line, optical coupler;

wherein light received by at least one of the first and second ports is split by the first optical coupler and transmitted by both the third and fourth ports to the light transmission line in opposite directions by the fiber optic-line, optical coupler; and

wherein light extracted from the light transmission line by the fiber optic-line, optical coupler and received by at least one of the third and fourth ports is split by the first optical coupler and transmitted by the both the first and second ports.

12. (Original) An optical transport system according to claim 11, wherein the fiber optic-line, optical coupler is a pair of fiber optic-line, optical couplers comprising first and second fiber optic-line, optical couplers, the first fiber optic-line, optical coupler comprising:

a first port for receiving light transmitted in a first direction on the light transmission line and for transmitting light received from either the second fiber optic-line, optical couplers or the first optical coupler to the light transmission line in a second direction opposite to said first direction;

a second port for transmitting light received from the light transmission line in said first direction by the first port to the second fiber optic-line, optical coupler and for receiving light in said second direction from the second fiber optic-line, optical coupler; and

a third port for transmitting light received from the light transmission line by the first port in the first direction to the first optical coupler;

wherein light received by the first port of the first fiber optic-line, optical coupler is split by the first fiber optic-line, optical coupler and transmitted by both the second and third ports; and

the second fiber optic-line, optical coupler comprising:

a fourth port for receiving light transmitted in the second direction on the light transmission line and for transmitting light received from first optic line optical coupler or the first optical coupler to the light transmission line in the first direction;

a fifth port for transmitting light received from the light transmission line in second direction by the fourth port to the first fiber optic-line, optical coupler and for receiving light in the first direction from the first fiber optic-line, optical coupler; and

a sixth port for transmitting light received from the light transmission line in the first direction by the fourth port to the first optical coupler;

wherein light received by the fourth port of the second fiber optic-line, optical coupler is split by the second fiber optic-line, optical coupler and transmitted by both the fifth and sixth ports.

13. (Original) An optical transport system according to claim 1, wherein the light transmission line comprises first and second fiber optic lines.

14. (Original) An optical transport system according to claim 13, wherein the optical interface device comprises:

a first optical coupler for receiving light to be inserted onto or extracted from the first fiber optic line;

a pair of first fiber optic-line, optical couplers, each coupled to the first fiber optic line and to the first optical coupler, for passing light on the first fiber optic line, for receiving light from the first optical coupler to be inserted onto the first fiber optic line and transmitting said received light in opposite directions on the first fiber optic line, and for extracting light from opposite directions on the first fiber optic line and transmitting said

extracted light to the first optical coupler;

a second optical coupler for receiving light to be inserted onto or extracted from the second fiber optic line; and

a pair of second fiber optic-line, optical couplers, each coupled to the second fiber optic line and to the second optical coupler, for passing light on the second fiber optic line, for receiving light from the second optical coupler to be inserted onto the second fiber optic line and transmitting said received light in opposite directions on the second fiber optic line, and for extracting light from opposite directions on the second fiber optic line and transmitting said extracted light to the second optical coupler.

15. (Original) An optical transport system according to claim 14, wherein the first and second optical couplers are each a four port, bidirectional optical coupler.

16. (Original) An optical transport system according to claim 15, wherein the first optical coupler has:

first and second ports for receiving light to be inserted onto the first fiber optic line and for transmitting light extracted from the first fiber optic line, and

third and fourth ports each respectively connected to one of the pair of first fiber optic-line, optical couplers;

wherein light received by at least one of the first and second ports is split by the first optical coupler and transmitted by both the third and fourth ports in opposite directions on the first fiber optic line by the pair of first optic line optical couplers; and

wherein light extracted from the first fiber optic line and received by at least one of the third and fourth ports is split by the first optical coupler and transmitted by the both the